

# Wudu Improving Sleep Quality on Elderly with Insomnia

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**ABSTRACT-** *Changes in sleep quality on elderly can lead to sleep disturbances such as insomnia. It needs proper interventions, one of them is to get wudu before going to sleep. The purpose of this study was to determine the effect of wudu in improving sleep quality in elderly with insomnia. Method: This study was used quasi-experiment method. The samples were 20 elderly with insomnia. The instrument used in this study was Pittsburg Sleep Quality Index (PSQI). Data were analyzed by using McNemar and Chi Square test with  $\alpha \leq 0.05$ . Result: The results showed the effect of wudhu in elderly sleep quality ( $p=0.031$ ), and there was significant differences between intervention group and control group ( $\alpha =0.003$ ). Conclusion: Water splash and massage on wudu reduce muscle tension and make body relaxed and can be used as relaxation therapy. It could improve sleep quality in elderly with insomnia. It was recommended to elderly with insomnia to keep applying wudu as sleep hygiene to get good sleep quality.*

**Keywords:** *wudhu, sleep quality, elderly, insomnia*

## I. INTRODUCTION

The elderly experience many changes in physical, psychosocial and spiritual as their age changing. One of those is the change of their sleep quality. Changes in sleep quality are one of the problems caused by degeneration process in elderly. Changes in sleep quality can cause many elderly at risk of sleep disorders. Many factors cause sleep disorders in the elderly (e.g., retirees and change in social patterns, the death of a spouse or close friend, the increased use of drugs, the disease that had just experienced, circadian rhythm changes) [1].

Insomnia is a sleep disorder which is most commonly found in Indonesia[2]. Insomnia sleep disorder is one of a sleep disorder which commonly occurs in the 50% of people aged 65 years or older living in the home and 66% of elderly living in the long-term facility[3].

The prevalence of sleep disorders in elderly is quite high at 67%[4]. The elderly complain that they are difficult in starting sleep as much as 40%, often wake up at night as much as 30% and 30% are other sleep disorders[5]. The survey by the National Institute of Health in the United States mentioned that in 1970, total population who experience insomnia were 17% of the population, the percentage of patients with insomnia

were higher experienced by the elderly, which is 1 of 4 elderly at the age of 60 experience difficulty in sleeping (Chopra, 1994 in [6]).

There are several ways to solve sleep disorders in the elderly. One of those ways is non-pharmacological therapy with sleep hygiene. The application of sleep hygiene may include education about change in habits, attitudes, and environment to improve sleep quality by health promotion about sleep patterns [4][7]. One form of that education such as encourages elderly to wudu before they are going to bed.

Wudu consist of hydro massage and religious relaxation techniques. Hydro massage by performing wudu provides stimulus which can affect the cerebral cortex through neural pathways activation of RAS (Reticular Activating System) which brings the influence of standby/awake. This technique can reduce those stimuli so that the elderly can sleep. Religious relaxation through the optimization of the spiritual brain can stimulates emotional skills component and then elderly could relax and fall asleep.

## II. METHODS

This study was used quasi-experiment method. The populations in this study were 30 elderly with insomnia in PSTW Puspakarma Mataram. This study was used non-probability sampling technique with total sampling method. The samples were 20 elderly with insomnia according to the inclusion criteria. Then, the samples were divided into intervention and control groups. The independent variable was wudu, while the dependent variable was the sleep quality of elderly. The instrument used in this study was Pittsburg Sleep Quality Index (PSQI).

## III. RESULTS

Table 1 shows that both men and women respondents have the same number, 10 people or 50% of each category. Half of the respondents or 10 people (50%) are 66-75 years old, and three elderly (15%) are 76-85 years old. Half of the respondents, or 10 people have been living for 1-5 years, and four elderly (20%) have been staying for 6-10 years. Half of the respondents have the habit of sitting or stay on the bed

before they are going to sleep as many as 10 people (50%) and 3 elderly (15%) are watching TV before going to bed. 11 elderly (55%) have the habit of napping, while 9 elderly or (45%) does not have those habit.

TABLE I. DISTRIBUTION OF RESPONDENTS

No	Characteristics	Σ	%
1.	Gender		
	Male	10	50
	Female	10	50
2.	Age		
	60-65 years old	7	35
	66-75 years old	10	50
	76-85 years old	3	20
3.	Length of stay		
	< 1 year	6	30
	1-5 years	10	50
	6-10 years	4	20
4.	Habits before going to bed		
	Sitting on the bed	10	50
	Watching TV		
	Have conversation with other elderly	3	15
	Watching TV and listening to the radio	3	15
5.	Habit of napping		
	Yes	9	55
	No	11	45

TABLE II. SLEEP QUALITY BEFORE AND AFTER ELDERLY GET WUDU.

Criteria	Intervention Group				Control Group			
	Before		After		Before		After	
	Σ	%	Σ	%	Σ	%	Σ	%
Good	0	0	6	60	0	0	0	0
Poor	10	100	4	40	10	100	10	100
Σ	10	100	10	100	10	100	10	100

TABLE III. SLEEP QUALITY SCORE BEFORE AND AFTER ELDERLY GET WUDU.

No	Sleep Quality Score							
	Intervention Group		Control Group		Intervention Group		Control Group	
	Pre	Post	Pre	Post	Post	Post		
1.	16	10	15	14	10	14		
2.	9	4	13	14	4	14		
3.	9	5	9	12	5	12		
4.	8	4	14	9	4	9		
5.	9	4	15	11	4	11		
6.	5	3	7	7	3	7		
7.	13	3	9	8	3	8		
8.	15	8	9	9	8	9		
9.	14	14	8	8	14	8		
10.	8	4	9	9	4	9		
	P = 0.031			α = 0.003				

Based on Table 2, all respondents in the intervention group had poor sleep quality before intervention given to them. After respondents being given wudu before sleep, sleep quality in

intervention group became good by 60% and 40% were in bad criteria of sleep quality.

Table 3 shows the results of statistical tests using the McNemar and Chi Square test. Based on McNemar test result, there was an improvement of sleep quality in intervention group before and after respondents get wudu before they were going to sleep with  $p = 0.031$ . It means wudu could improving the sleep quality of elderly. The result of Chi-Square test showed that there was significant differences of sleep quality in intervention group and control group with  $\alpha = 0.003$ . It can be interpreted that wudu is affecting sleep quality in elderly.

#### IV. DISCUSSION

Most of the female respondents have the habit of napping. Ref [8] mentioned that a person's daily routines affect sleep patterns. Almost all women elderly spend more time in PSTW with little activity so that respondents feel sleepy during the day. Most of the male respondents did not have the habit of napping because they have a lot of activity during the day such as helps improve the building facilities, walk around PSTW, and participate in maintaining the cleanliness of the PSTW. Researcher argued that napping patterns of the elderly can be affected by the length of night sleep time and activity during the day.

Ref [9] said that as someone grows older, there was a decrease in the sleep period. Night's sleep need of 60 years old elderly was reduced to 6.5 hours and was reduced again to 6 hours at the age of 80 years. Researcher argued that increasing of age affects the elderly sleep fulfillment due to degeneration process which leads to inadequate sleep quality.

The longer elderly living at the social institution, the elderly will be more able to adapt to the environment and their sleep. The risk of sleep disturbances often occur on the first night of hospitalization or long-term care facility, but the elderly sleep disorders related to the ability of the elderly to adapt to the new environment[10]. Researcher argued that elderly who was stay in social institution longer than the others will be better to adapt.

All respondents in this study before granted intervention were experienced sleep disturbances with poor sleep quality category. Based on the questionnaire, there was 14 respondents said about their poor sleep quality, 6 respondents were difficult in initiating sleep < 30 minutes for a week, 14 respondents sleep < 5 hours, 6 respondents had sleep efficiency < 65%, 9 respondents said their activity in daytime were impaired, 20 respondents woke up at midnight, and 20 respondents also said that awakened to use the bathroom. Some elderly also complained about temperature changes in their room which make the elderly difficult to sleep at night.

The sleep quality which is less in elderly can occur due to a progressive decrease in NREM sleep stages 3 and 4. Some elderly almost did not have stage 4 or a deep sleep. Changes in sleep quality in elderly can be affected by the environment, lifestyle, and medications. A comfortable place where elderly lived, appropriate room temperature and good lighting can improve the sleep quality of the elderly[11]. Researcher argued that sleep quality of the elderly was not only influenced by

seven components contained in PSQI, but also influenced by environmental conditions such as hot temperature can make the elderly difficult to sleep at night.

After the elderly have been given intervention (wudu) for ten days, there was changes in sleep quality became good sleep quality as much as 6 of 10 respondents. Men and women respondents who experience sleep quality changes into a good sleep quality has the same number as many as three respondents. There were 5 respondents with good sleep quality, 9 respondents did not experience difficulty in initiating sleep, 8 respondents sleep > 5 hours, 4 respondents had sleep efficiency of 75%-84%, no respondents who consumed sleeping pills, 7 respondents said activity in the afternoon was not disturbed, 5 respondents said awakened at night and 10 respondents in intervention group said they still awakened because they have to go to the bathroom. While there was no changes of sleep quality in control group.

Improvement of sleep quality can be affected by the implementation of sleep hygiene before bedtime. Good sleep hygiene can solve sleep disorders problem through improved sleep quality. The implementation of sleep hygiene can be done by providing education about changes of sleep habits in improving sleep quality. One form of education that can be taught in the elderly to solve their sleep disorders problem is using one or more methods of relaxation[7]. It could be performed wudu before bedtime. Wudu is one of relaxation techniques which involves belief factor.

Wudu consist of hydro massage and religious relaxation techniques. Hydromassage by performing wudu provides stimulus which can affect the cerebral cortex through neural pathways activation of RAS (Reticular Activating System) which brings the influence of standby/awake. This technique can reduce that stimulus so that the elderly can sleep. Religious relaxation through the optimization of spiritual brain can stimulates emotional skills component and then elderly could relax and fall asleep[12][6].

Researcher argued that improving sleep quality in elderly affected by wudu as the implementation of good sleep hygiene. No changes of sleep quality in control group can be caused by the intervention they were not given intervention (wudu). While respondents in the intervention group who still have poor sleep quality can be caused by the lack of confidence in effect of performed wudu and activities of the respondent after they performed wudu were not observed.

Based on the results above, there was a change of sleep quality intervention group, while there was no change in control group. This proves that wudu affecting sleep quality in elderly with insomnia.

The results of this study consistent with research about the effect of wudhu before sleep on the incidence of insomnia in the elderly in Dusun Tilaman Wukirsari Imogiri Yogyakarta [13]. Wudu has a positive impact on in decreasing the incidence of insomnia in the elderly. It can be seen from the changes in prevalence of insomnia in the elderly before and after they performed wudu.

Wudu consist of hydro massage and religious relaxation techniques. Hydromassage by performing wudu provides the

stimulus which can affect the cerebral cortex through neural pathways activation of RAS (Reticular Activating System) which brings the influence of standby/awake. This technique can reduce that stimulus so that the elderly can sleep. Religious relaxation through the optimization of the spiritual brain can stimulate emotional skills component and then elderly could relax and fall asleep. The spiritual dimension was one of the important dimensions which need to be considered by nurses in providing a nursing care plan to all clients. Faith or religious belief is very important in personal in one's personal life. Faith is known as a powerful factor in physical healing [14].

Wudu on some parts of the body brings a sense of peace, and massage or rubbing when someone takes wudu will reduce muscle tension so that the body will be relaxed and can be used as relaxation therapy for peace of mind. When the mind relaxes, the body will come to relax. State of mind and body which relaxes can prevent the elderly from insomnia and will have a good sleep quality[15][13].

This study also consistent with research that there was a decrease in anxiety which one of the causes of sleep disorders in the elderly after elderly performed wudu[16]. Wudu can reduce the level of anxiety experienced by the elderly because it can provide a sense of relaxed, comfortable, and helps in reducing tension.

Ref [6] mentioned that when someone is having sleeping problems then there was tension in their brain and muscles so by activating parasympathetic nervous system with relaxation techniques, tension was reduced automatically so that someone would be easy to sleep. Therefore it is recommended for elderly to perform wudu to reduce tension so that the elderly will not have problems with insomnia.

Researcher argued that respondents who performed wudu feel more relaxed and comfortable. The sleep quality of respondents became good, difficulty in initiating sleep more than 30 minutes is reduced, increased sleep duration, sleep efficiency became better, sleep disturbance was reduced, no use of sleeping pills, and activities during the day felt better. Wudu provide comfort and affecting cerebral cortex through nerve pathways activation of RAS which brings the influence of standby/awake. This technique can reduce that stimulus so that the elderly can sleep more easily.

## V. CONCLUSION AND RECOMMENDATION

Almost half of the elderly in PSTW Puspakarma experienced insomnia with complaints of difficulty to initiate sleep and wake up at midnight. The sleep qualities of all respondents before given wudu intervention were in poor sleep quality and mostly influenced by disturbance aspect when elderly sleeping at night. After elderly being given wudu intervention, there was an improvement of sleep quality which is in good category and mostly in sleep latency aspect. It can be concluded that wudu improving sleep quality in elderly.

It was necessary for the elderly who have sleep disorders or poor sleep quality to perform wudu before they were going to bed to get good quality sleep. The nurse may apply wudu as

new alternative nursing intervention which can be given to the elderly to improve their sleep quality.

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